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IBM CORPORATION			THOMAS, SHANE M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/758,484	GRIFFIN ET AL.
	Examiner	Art Unit
	Shane M. Thomas	2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 March 2007.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-32,34 and 36 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-32,34 and 36 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is responsive to the amendment filed 3/19/2007. Claims 1-32,34, and 36 are pending. Applicants' arguments and amendments to the claims have been carefully; however, the amendment to the claims has not been deemed substantial enough to obviate the Micka reference. Accordingly, this action has been made FINAL.

Response to Amendment

Applicant amended the claims to include the limitation of an "order dependency"; however, such an amendment has resulted in an 112, second paragraph rejection as discussed below in regards to claims 14-16,31, and 34. The amendment of --computer readable medium-- to claims 17-31 has resulted in a new matter issue, and a proposed correction has been discussed below.

Response to Arguments

Applicant's arguments have been considered and are not persuasive. The Examiner, upon further consideration, has broadly interpreted the term --concurrently-- of the claims as discussed further below, thereby the Micka reference still applies to the immediate claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 17-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The term --computer readable medium-- has not been described in the specification in such away to allow one of ordinary skill to ascertain the difference between --computer readable medium-- and that of a --recordable type media--. To overcome this rejection, the Examiner recommends amending the term --computer readable medium-- to recordable type media-- which is properly defined in the applicant's specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14-16, 31, and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 14,31, and 34, it is not clear whether the --plurality of groups-- are being claimed to have an --order dependency-- or if the --update requests-- are being claimed to have

an --order dependency--. Nonetheless, for the purposes of examination, the Examiner has considered the --plurality of groups-- as --having an order dependency--.

Claims 15 and 16 are rejected as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per claims 17 and 31, because not properly defined in the originally-filed specification, the term --computer readable medium-- may be interpreted as --transmission type-- media and therefore non-statutory subject matter. This subject matter does not fall within a statutory category of invention because it is neither a process, machine, manufacture, nor a composition of matter. Instead, it is directed to a form of energy. Forms of energy do not fall within a statutory category since they are clearly not a series of steps or acts to constitute a machine, not a tangible physical article or object which is some form of matter to be a product and constitute a manufacture, and not a composition of two or more substances to constitute a composition of matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,6-32, 34, and 36, are rejected under 35 U.S.C. 102(b) as being anticipated by Micka et al. (U.S. Patent No. 5,592,618).

As per claim 1, Micka teaches a **method for updating data at a backup system** (figure 1, 431) **that tracks updates made to a primary system** 421 where the method comprises: **creating a group** (e.g. consistency group #1 of figure 6) **including a plurality of update requests** [9/52-54] **having an order dependency** (writes in a consistency group may be dependent and have to be recorded in timestamp order - [11/39-43]); **concurrently completing the plurality of update requests of the group** (dictionary.com defines the term “concurrently” to be “occurring simultaneously”; therefore, because the updates of a consistency group are all sent to the backup system SDM at the time [11/28-33], those plurality of update requests are being considered to be concurrently completed); **after completing the plurality of update requests, completing a subsequent update request** [11/45-46], where dependent writes may be supplied to the backup system in a subsequent update request group, and [11/55-65] as well as figure 6, where a second consistency group is executed after the first update requests of the first consistency group.

As per claim 2, Micka teaches **wherein completing a subsequent update request includes creating a subsequent group** (figure 6, [11/55-65], and [11/45-46], show that multiple

consistency groups may be formed where dependent update writes may be contained in subsequent consistency groups).

As per claims 3 and 20, Micka teaches **wherein creating the group further includes creating a group that includes a plurality of requests initiated at a plurality of applications** (402 and 403 of figure 1, where the update requests are application writes - [11/37-43]).

As per claims 4 and 21, Micka teaches **wherein creating the group further includes updating a count associated with a number of the plurality of update requests** (figure 3, element 609).

As per claims 6 and 22, Micka teaches **wherein creating the group further includes updating a status** (status flags 604, figure 3) **indicative whether the group is active** (e.g. whether the group contains update requests [10/5-6]), where the Examiner is considering -- being active-- as whether or not the associated group contains update requests 620 as shown in figure 3.

As per claims 7,16, and 24, Micka teaches **wherein creating the group further includes assigning a group number** (sequence number 605 - figure 3 or 504 of figure 2) **to an update request of the plurality of update requests.**

As per claims 8 and 25, Micka teaches **wherein completing the plurality of update requests further includes issuing an update request of the plurality of update requests** (figure 8, step 1160, and [13/64 - 14/7]).

As per claims 9 and 26, Micka teaches **wherein creating the group** (e.g. steps 1000-1070 of figure 7) **further includes reading a group number from an update request of the**

plurality of update requests (step 1040), where the read record set information 600 comprises group number 605 - [12/54-58].

As per claims 10,15, and 27, Micka teaches **wherein completing the plurality of update requests further includes holding the subsequent update request** [11/37-46], where dependent subsequent write requests are held so that prior update requests on which the update request held depends may execute [and be written] first.

As per claims 11 and 28, Micka teaches **wherein completing the subsequent update request further includes releasing a hold on the subsequent update request** [11/37-46], where after a dependent write is executed, the subsequent update request which is dependent upon the previous write is executed.

As per claims 12 and 13, Micka states that either the **primary system** 421 or a **backup system** 431 may **create groups** (consistency groups - figure 8, steps 1100-1130), **complete groups** (figure 8, step 1130), and **complete subsequent update request** (figure 8, step 1130 for a subsequent consistency group as discussed in the rejection of claim 1, above) as taught in [11/47-49].

As per claim 14, Micka teaches **synchronously processing a plurality of groups of update requests** [11/55-59], as the consistency groups are executed in synchronous order - also see [11/43-46]. The **plurality of groups having an order dependency** (timestamp dependency [11/55-59] and [11/43-46]) - and **asynchronously processing the update requests in each group** [11/36-39], as update requests that are independent may be executed out of order. Applicant defines asynchronous execution as processing updates without regard to sequential

order (page 3, lines 3-15, of the specification), and Micka teaches such asynchronous activity as cited when the update requests of a given consistency group comprise independent writes.

As per claim 17, Micka teaches an **apparatus** (figure 1) **comprising a processor** (refer to claim 1 of Micka) and **computer readable medium encoded with programming code** (host storage software - [6/51-56], and/or the copy software comprising the data mover 404 - [15/21-23] **communicating with the processor** (as the processor inherently would have been used to execute the data mover 404 software instructions) **configured to process a plurality of update requests having an order dependency** (writes in a consistency group may be dependent and have to be recorded in timestamp order - [11/39-43]) **by initiating creation of a group including a portion of the plurality of update requests** [9/52-54] **concurrently initiating completion of the portion of the plurality of update requests** (dictionary.com defines the term “concurrently” to be “occurring simultaneously”; therefore, because the updates of a consistency group are all sent to the backup system SDM at the time [11/28-33], those plurality of update requests are being considered to be concurrently completed), **and after initializing the completion of the portion of the plurality of update requests, initiating completion of a subsequent update request** [11/45-46], where dependent writes may be supplied to the backup system in a subsequent update request group, and [11/55-65] as well as figure 6, where a second consistency group is executed after the first update requests of the first consistency group.

As per claim 18, Micka teaches **the program code 404,414 residing on both the primary system 421** (figure 1, element 404) and the **backup system 431** (element 414), **and the backup system is peripheral from the primary system** (figure 1 shows a peripheral connection 408 between the two systems).

As per claim 19, Micka teaches **the program code initiating creating a subsequent group** (figure 8, steps 1140-1150).

As per claim 23, Micka teaches **a memory (figure 1, 406) accessible to the program code** as the DASD 406 is the memory whose write requests are being mirrored to the backup system 431.

As per claims 29 and 30, Micka teaches **the program code (414,404) residing on both a backup system 431 and a primary system 421** (figure 1), respectively.

As per claims 31, the rejection follows the rejections for claims 14 and 17.

As per claim 32, the rejection of lines 1-7 follows the rejection of claims 1 and 17. As per lines 8-9, Micka inherently teaches **a recordable type signal bearing medium bearing the program code** as the data mover 404 software must inherently be contained on a signal bearing medium in order to be accessed and executed by the processor (claim 1 of Micka). Further, it is inherent that the signal bearing medium is **recordable** since the medium, initially blank, at some point before the system 421 begins operation according to Micka must have the data mover code/software written thereon in order to be executed by the processor.

As per claim 34, the rejection of lines 1-5 follows the rejection of 14 and 31. As per lines 6-7, the rejection follows the rejection of lines 8-9 of claim 32, above.

As per claim 36, Micka teaches **after completing the plurality of update requests (the transfer of the consistency group to the SDM - [11/28-33])**. The **arranging of the plurality of update requests according to order dependency** may occur after the updates are sent to the SDM (consistency groups may be formed and ordered in the SDM - [11/66 - 12/6]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Micka et al. (U.S. Patent No. 5,592,618).

As per claim 5, Micka does not specifically teach **selectively activating the method of claim 1**; however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have seen that the systems of Micka 421 and 431 could have turned on and off by a user/administrator at some point in time in order to gain the benefit of the backup system of Micka. Further, it would have been obvious for one having ordinary skill in the art to have seen that after a disaster recovery procedure [2/25 - 3/2], where data was recovered from one of the systems 421,431, the method of claim 1 would have been restarted or activated again (selectively, once the data had been recovered) in order to have gained the benefit of data integrity as taught throughout Micka.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M. Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M. Kim can be reached at (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2186

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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